# Federal Information Technology Market Program (FITMP)
# Executive Research Bulletins

*✓ IN BOOK*

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# INPUT®
# Research
# Bulletin

**A Publication from INPUT's Federal Information Technology Market Program**

# Federal Computer Security—A Necessity for Today's Government

As automation increases, technology advances, and information sharing becomes common practice, federal computer security gains vital importance.

Current research suggests that the market for federal computer security products and services is growing. According to agencies interviewed, 86% have identified sensitive systems, 68% have completed security plans, and 41% have implemented security plans.

For the past few years, agencies have struggled to comply with the Computer Security Act of 1987. Several other market pressures are also adding to growth in this market, such as increased information sharing and publicized security violations. These pressures, along with identified security weaknesses within specific agencies, will cause the federal security market to continue growing.

The Federal Computer System Security and Privacy Advisory Board has identified ten agencies with inadequate security programs or

policies and twelve with inadequate or no contingency plans; these agencies are listed in Exhibit 1. These weaknesses give way to opportunities for security contractors.

Exhibit 2 summarizes key security issues in today's federal market.

Many agencies are experiencing problems with near-term compliance for computer security. For the most part, they are considering computer security when developing specifications for future systems. Retrofitting existing systems with security features is more difficult, however.

Better oversight coordination is needed within the agencies, as well as between agencies governing security policy. More agencies lack emergency or contingency plans pertaining to computer security. Also NIST, NSA, OMB, and GSA need better coordination of efforts for monitoring security compliance and standards development.

Exhibit 1

## Agencies with ADP Security Weaknesses

| Inadequate Security Programs or Policies | Inadequate or No Contingency Plans |
| --- | --- |
| Veterans Affairs | Veterans Affairs |
| Treasury | Treasury |
| Health and Human Services | State |
| Education | Education |
| Agriculture | Federal Communications Commission |
| Commerce | Securities and Exchange Commission |
| Defense (Joint Staff) | Agriculture |
| Justice | Defense |
| Securities and Exchange Commission | Interior |
| FBI | Justice |
| | Marshals Service |
| | Drug Enforcement Agency |

Source: INPUT

Exhibit 2

## Computer Security Issues

- Near-term compliance problems

- Better oversight coordination

- Enhanced multilevel security

- New approaches to managing security

- Need for increased resources

Source: INPUT

Exhibit 3 shows the security requirements of the agencies interviewed.

All participants in the agency survey specified the need for network security, although it is unusual for agency respondents to agree universally on anything. This response suggests the importance agencies assign to securing their networks.

Exhibit 3

## Security Requirements

| Requirement | Percent of Respondents* |
|---|---|
| Network Security | 100 |
| End-User Access | 95 |
| Data Security | 91 |
| Physical Security | 86 |

*Multiple responses allowed          Source: INPUT

Research indicates that the federal market for computer security products and services will grow from $609 million in FY 1992 to $761 million in FY 1997, at a modest compound annual growth rate (CAGR) of 5%. Exhibit 4 displays the overall forecast.

Software products will show the fastest growth as agencies use them to improve security in their installed systems. The equipment market will remain fairly flat, reflecting reduced demand for Tempest products and growing cost effectiveness of Tempest technology. The market for professional services will also remain flat, reflecting a saturated market.

In providing computer security products and services to the federal government, vendors need to take a flexible approach. Although there are clearly some definite needs, as in network security, likely spending remains somewhat ambiguous. If Congress continues to pressure the agencies, spending may increase slightly more than forecasted, but probably not much. Vendors need to include security products as part of other offerings, such as professional services or network development and implementation.

Vendors should focus less on Tempest equipment. In past decades, Tempest equipment was the largest portion of the security market. But because of the end of the Cold War and the lessening threat of other nations, Tempest equipment is not as necessary as in the past. Professional services, software, and other security hardware will demand larger portions of the computer security market.
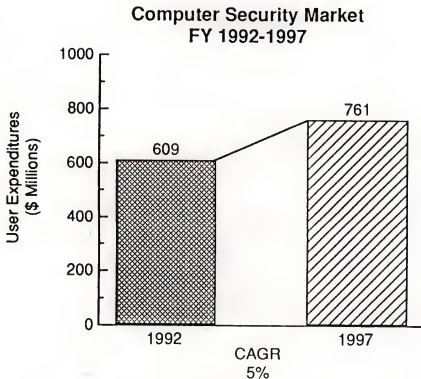
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Exhibit 4

### Computer Security Market
### FY 1992-1997



*Chart showing User Expenditures ($ Millions) with bars: 1992 = 609, 1997 = 761. CAGR 5%.*

Source: INPUT

Security vendors should also develop products that accommodate the widely varied systems and equipment types in the federal market. To the extent that security products accommodate applicable federal standards, potential market penetration will increase.

Finally, there is an opportunity for vendors to train agencies and offer products for effective security management. Many agencies fall short in this area. They need to be taught how to monitor, manage, and upgrade their computer security. Also, they need to be pushed to develop contingency plans in case of security problems. Vendors who can help agencies with these management issues will have a competitive advantage.

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# U. S. Electronic Commerce/EDI Federal Markets

This Research Bulletin is being issued as a preview of INPUT's report, *U. S. Electronic Commerce/EDI Markets, 1991-1996.* It provides an overview and summary of the findings in the report.

## Market Overview

INPUT defines electronic commerce (EC) as the electronic transfer of information among organizations in a structured application. The scope of this definition of EC includes a wide variety of electronic transactions. Electronic data interchange (EDI) is the commercial standard that has been mandated for use in the government by OMB when the government uses typical electronic business transactions. EDI is used to transfer electronic purchase orders, invoices, bills of lading, tax information and financial reports.

A large number of EC applications exist or are being developed. Treasury and other agencies use standard electronic funds transfer (EFT) formats when moving money. Some entitlement programs are currently conducting demonstration projects for electronic benefits transfer payments (EBT). CALS is an evolving standard to communicate procurement information. The EDMICS standard is used for the transfer of engineering drawings and to facilitate concurrent engineering. SGML is the standard adopted for transfer of electronic documents.

In general, government agencies try to balance conflicting demands for more information and less paperwork. Virtually any area of the government that involves a great number of transactions is a candidate for EC. These market pressures are illustrated in Exhibit 1.

In its drive to improve productivity, to do more with less, the federal government is growing increasingly reliant on information technology. In some cases, budget constraints are actually fueling the growth of EC.

Exhibit 1

### Federal Market Pressures

- Need for improved productivity
- Technical staff shortage
- Budget deficit
- Commercial expectations
- Mandated use

Source: INPUT

The benefits of EC have been proven by numerous demonstration and pilot projects and major development efforts. The opportunities for technology companies are shifting from the very large developmental projects in a few agencies to smaller, production-oriented systems in numerous agencies.

Information technology vendors to the federal government are affected in two ways. First, there is the obvious opportunity to deliver products and services that address this need. Less intuitive is the need for all suppliers to develop the ability to interact with the government using these processes. The vendors who adopt EC early and conform to government standards will have a competitive advantage.
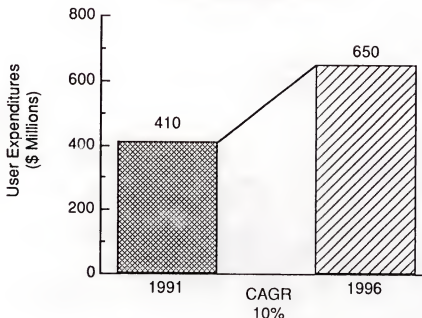
## Market Forecast, 1991-1996

INPUT estimates that the federal EC market for network services, software, professional services and related equipment will increase from $410 million in FY 1991 to $650 million by FY 1996, a compound annual growth rate of 10%. Exhibit 2 illustrates INPUT's market forecast. Significantly more detail is available in the full report. This estimate does not include expenditures by state and local governments or commercial entities external to the government. These entities will also purchase similar products and services necessary to communicate electronically with the federal government.

INPUT believes this to be a conservative market analysis and forecast. There are additional EC opportunities included as part of other system acquisitions and enhancements. A single successful, large program could cause the market to increase. For example, the USDA's Food and Nutrition Service pilot project to electronically replace food stamps could result in major software and equipment purchases. INPUT will reexamine this market later in 1992.

Exhibit 2

**Federal EC Market**



Bar chart titled "Federal EC Market". Y-axis: User Expenditures ($ Millions), from 0 to 800. 1991 bar: 410. 1996 bar: 650. X-axis labels: 1991, CAGR 10%, 1996.

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## Federal Market Issues

All of the government CALS effort has been consolidated in the Joint CALS Management Office (JCMO) under Major General Russ Baldwin. The JCMO has an FY 1992 budget of $230 million for 25 different projects. Although CSC has been awarded the final CALS contract, there is substantial work outside of that contract available to other vendors. Vendors who perform work in this office will be in an advantageous position to become suppliers for other agencies and projects. INPUT expects CALS to expand to include several standards and to be adopted by other agencies as well as by major government suppliers. Standards will continue to evolve and vendors must keep current.

Several of the EC systems that are in the final stages of implementation are very visible and have brought recognition to the responsible government managers. These spokespersons for EC have set examples at several agencies. These highly visible successful examples are clearing the way for many other applications.

There has been some concern that government policies, regulations and laws may not allow for the use of electronic documents and signatures. The legal validity of electronic documents is completely supported by existing laws and regulations or the necessary regulations will be modified. Although the use of electronic signatures is still under development, it is not expected to be a barrier to the use of EC.

One remaining major issue is the integration of the EC process into existing internal systems. It is a rather simple process to electronically format and transmit data. The real issue is the location and extraction of the relevant data prior to its transmission and the mapping of the received data into the appropriate data bases and files. These areas require a substantial amount of customization of software and systems. Often, while EC is being adapted to internal systems, the entire process of handling the data is also upgraded.

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# About INPUT

INPUT provides planning information, analysis, and recommendations for the information technology industries. Through market research, technology forecasting, and competitive analysis, INPUT supports client management in making informed decisions.

Subscription services, proprietary research/consulting, merger/acquisition assistance, and multiclient studies are provided to users and vendors of information systems and services. INPUT specializes in the software and services industry which includes software products, systems operations, processing services, network services, systems integration, professional services, turnkey systems, and customer services.

Particular areas of expertise include CASE analysis, information systems planning, and outsourcing.

Many of INPUT's professional staff members have more than 20 years' experience in their areas of specialization. Most have held senior management positions in operations, marketing, or planning. This expertise enables INPUT to supply practical solutions to complex business problems.

Formed as a privately held corporation in 1974, INPUT has become a leading international research and consulting firm. Clients include more than 100 of the world's largest and most technically advanced companies.

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# Outsourcing and The Federal Market

## General Outsourcing Discussion

To gain some perspective on outsourcing in the federal marketplace, it helps to briefly look at the ongoing commercial outsourcing explosion. Though some of INPUT's competitors claim even higher rates of growth in the market, INPUT's own estimate is healthy enough—18% compounded over the next five years.

The reasons for this strong growth are summarized in Exhibit 1. The primary reasons are:

- The continued slump in the economy makes the immediate cost reductions offered by outsourcing attractive to more companies.

- The relative success of IBM's ISSC and EDS in smoothly transitioning major outsourcing clients is stimulating increased acceptance of the concept.

- The outsourcing arrangement itself is beginning to include much more than just processing operations or software maintenance. It now includes software development, network management, desktop services and even education and training components.

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Exhibit 1
### Growth Factors for Commercial Outsourcing

- Continuing economic slump

- Success of major vendors
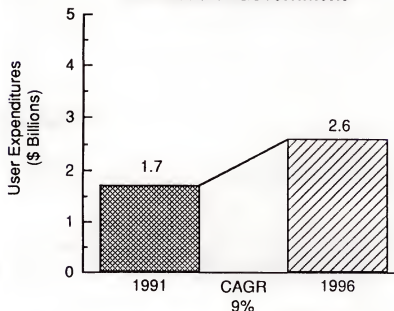
- Outsourcing more comprehensive

Source: INPUT

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There are also some examples of entire business operations being turned over to outsourcing vendors. This trend is expected to accelerate as the decade progresses and clients become more comfortable with the outsourcing partnership that is evolving.

## Federal Outsourcing Activity

Does this same level of activity pervade the federal market? INPUT projects the growth at a disappointing 9% for the same five-year period from 1991 to 1996. That still represents a $1.7 billion business, growing to $2.6 billion by 1996. The federal market is now the second largest outsourcing market and will still be in 1996, though by a smaller margin (see Exhibit 2).

Exhibit 2

## U.S. Federal Government



Source: INPUT

Exhibit 3, favor the growth of outsourcing.

But there are negative factors at play also. Budget restrictions continue to plague the procurement plans of agencies and to delay, if not derail, many needed IS upgrades and expansions. DoD in particular is saddled with this problem. Vendor protests are also delaying the procurement process. Since most of the outsourcing procurements are major awards, these are particularly affected by protest action and congressional scrutiny. The CORN outsourcing contract recently awarded to EDS is a classic example of one that had to be passed through the procurement process twice before it was finally awarded. The recent anti-grand-design study by AMS for GAO is also tempering plans for new large procurements and is causing some of the procurement efforts to be segmented.

Why is there such a difference in growth? After all, systems outsourcing was an early phenomenon in the federal marketplace. GOCO (government-owned, contractor-operated) and COCO (contractor-owned, contractor-operated) facilities management contracts have existed for years.

In fact, the distinction of who owns the facility has become insignificant. The term *mission contracting* has evolved to describe the outsourcing arrangement. It really means the same thing—namely, that a vendor assumes total responsibility for an agency's data processing requirements.

There is still a shortage of sufficient technical skills in the government to operate and manage computer centers and implement new technologies. There still is a strong mandate for agencies to provide services to the public that serve the public welfare and the security needs of the citizens. The A-76 initiative is still in place, encouraging the use of private contractors. These factors, summarized in

Exhibit 3

## Federal Outsourcing Growth Factors

- Lack of technical skills persists

- Mandated services required

- A-76 initiative still in place

Source: INPUT

## Outsourcing Components in the Federal Market

Now that we know the driving forces and inhibitors for the federal market, are there other differences? The one glaring difference, in INPUT's opinion, is that the expansion of outsourcing to include other services such as desktop services and business operations will not happen as rapidly, if at all, in the federal market.

There are two reasons for this, illustrated in Exhibit 4. First, many agencies are already acquiring the services needed through a series of procurements. Many agencies, for example, do not need a network management component in their outsourcing contract because they are required to use FTS 2000. Others have already established PC/workstation procurement/ management contracts such as EDS's SMC (the Army's Small Multiuser Contract) and so they do not need desktop services in their outsourcing agreements. Still others are accustomed to using SETA agreements for their software development and cannot or will not change these relationships.

Exhibit 4

### Differences in Federal Outsourcing Market

- Service acquisition split up

- Reluctance to turn functions to private sector

Source: INPUT

Second, many federal agencies—DoD agencies in particular—are reluctant to turn over complete responsibility for functional operations to commercial vendors.

- DoD cannot accept civilian contractor personnel in IS functions. Many of these functions would become mission critical or even high risk in times of emergency.

- The IRS will not turn over certain functions of tax return processing completely to a commercial vendor, though vendors will be used extensively to help IRS improve its systems capability.

The outsourcing components that are most likely to be included in federal procurements are therefore:

- Processing operations, particularly at laboratories, logistics and engineering facilities

- Software maintenance

- Applications software (primarily of non-mission-critical applications such as financial management software)

The following components will probably continue to be separate contracts or retained internally:

- Network management (voice, data and image/video)

- Software development

- PC/workstation support (including LAN administration)

- Education and training

## Conclusions

The reduced set of requirements for federal outsourcing contracts still gives vendors an opportunity to operate in this market with a leaner, more efficient support group in the operational phase. This doesn't apply to the marketing phase of federal outsourcing activities, since the rigors of the procurement process are already well known and require

much more marketing support than most commercial opportunities.

There is a substantial market for outsourcing services in the federal market that will continue to grow, but at a slower pace than the commercial market. The demand for services will include only a subset of the services required in the commercial arena. Certain well-entrenched vendors such as IBM, EDS, Martin Marietta, Boeing Computer Services and CSC have experienced teams that know how to operate very cost effectively in the structured federal contracts environment.

## More to Come

INPUT has scheduled a closer look at the federal outsourcing market in the fourth quarter of 1992. At that time, the size of the market will be analyzed in detail and parallels will be drawn between the commercial and the federal sector that will be valuable to vendors trying to move from one market to the other.

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# INPUT Information Center

INPUT's information center, located in our office at 1953 Gallows Road in Vienna, Virginia, is open to all clients during normal business hours. The center is a source of valuable information on the federal and commercial information technology and services markets. Many of the materials available to clients are listed below.

## The Federal Market

Access to the information center is part of INPUT's Federal Information Technology Market and Federal Information Technology Procurement Programs. The center contains the following resources:

*Federal Market Reports.* Included in the center are all INPUT reports concerning the federal market. These reports are available only for review.

*Federal Conference Proceedings.* Copies of INPUT federal conference binders are maintained in the center. These binders include hard copies of slides analyzing the federal market.

*Agency Stacks.* The majority of the federal information center consists of agency-specific information. The stacks include documents relating to procurements (RFPs, RFIs, etc.), major initiatives (i.e., CALS), and other subjects (strategic plans, directories, and selected contracts).

*Agency Files.* Copies of articles and other general information are filed by agency. The agency files complement the literature data bases used by research analysts in the hotline service.

*Agency Information Resource Management (IRM) Plans.* The information center contains IRM Plans for all civilian and defense departments, as well as for independent agencies.

*Agency A-11 Budget Submissions.* INPUT orders the submissions to the Office of Budget and Management for all major agencies. These documents contain the 43A and 43B exhibits, which list information on planned information technology spending. The 43B exhibits cite figures by program/initiative for a six-year fiscal period. The submissions for the next fiscal year are available in early spring.

*Bidders Mailing Lists.* INPUT orders mailing lists for major procurements, including programs profiled in the Federal Information Technology Procurement Program.

*Protest Information.* Protest filings and decisions are ordered from the GSA Board of Appeals and catalogued for the information center.

*General Accounting Office (GAO) Reports and Testimony.* Selected GAO Reports and Testimony since 1989 are available and catalogued in the center.

*Organizational Workcharts.* Organizational charts prepared by the Carroll Publishing Company for civilian and defense agencies are available for review.

*Periodicals Covering the Federal Market.* The information center has copies of the following periodicals for the past year: *Federal Computer Week, Government Computer News,* and *Washington Technology.* The past six months of the *Commerce Business Daily* are also kept in the center. INPUT maintains back issues of additional periodicals, which are listed in Exhibit 1.

*General Information.* In addition to these materials, INPUT maintains resources such as selected GSA Schedules, the President's Budget, the Federal Acquisition Regulations (FARs), and Federal Information Resource Management Regulations (FIRMRs).

## The Commercial Market and General Resources

As part of the Systems Integration and Outsourcing Strategy Programs, INPUT maintains the following resources. Please note that these materials (such as the company-specific information) are also useful to clients focusing on the federal market.

*Vendor Files.* INPUT catalogs materials prepared by information technology companies. These files contain annual reports, capability brochures, press releases, and GSA schedules. Articles discussing companies are also included in these files.

*CorpTech Directory.* The CorpTech Directory contains information on over 35,000 technology companies and is available for clients to use.

*Data Sources Directory.* The Data Sources guides to hardware and software products are maintained in the information center. These manuals contain product specifications.

*Periodicals.* Exhibit 1 list the periodicals that are available in the information center. In most cases, issues are maintained for one year.

*General Information.* In addition to these resources, there are various economic and financial materials, such as the U.S. Industrial Outlook, available for clients to use in the center.

## Information Center Procedures

Clients may schedule up to two hours to use the information center during normal business hours. Please schedule appointments in advance by calling (703) 847-6870. Clients are also allowed to check out selected materials in the information center for one day. In addition, a copier is available for clients to use and there is a computer equipped with a CD ROM drive to allow searches of Computer Select at the center. Clients will need a 3.5" disk formatted for a low-density drive to store information.

INPUT issues a list of recent additions to the center approximately every month as part of the PAR data base update procedure.

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Exhibit 1

## Periodicals Available in the Information Center

| | |
|---|---|
| • Communications Magazine | • InformationWeek |
| • CommunicationsWeek | • Lotus |
| • Computer | • Network World |
| • Computerworld | • PC Computing |
| • CSN (Communications, Software, Networks) | • PC Magazine |
| • Datamation | • Signal |
| • EDI World | • Systems Integration |
| • Electronic News | • Telecommunications |
| • Fortune | • VARBusiness |
| • Government Executive | • Washington Business |

Source: INPUT

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# Federal Software Reuse

The software reuse and megaprogramming initiative recently proposed in the DoD's Software Technology Strategy (SWTS) has drawn much comment from government agencies and the information industry. The SWTS wants to improve software productivity and reliability. Its objectives include reducing software life cycle costs by a factor of two, and reducing software defects and problems by a factor of ten within the next 15 years.

Many vendors have expressed concern about the feasibility of component-by-component production and the ultimate impact on the software industry. There are different aspects of the initiative that should be examined before dismissing it as unworkable. This Research Bulletin will discuss the diverse views of the parties involved: FAR (Federal Acquisition Regulations), the Defense Department, current reusable software depositories, other federal agencies, and the information industry.

## 1. Federal Data Rights to Software

Under the Federal Acquisition Regulations (FAR), the government has the legal right to utilize software it paid for wherever it has needs. The FAR specifies, under Part 227—Patents, Data, and Copyrights—that the government owns all software developed by federal employees on the job, and any software developed by a contractor with federal funds. The government is held to be legally free to

reuse any part or all of software so developed at any other federal facility, or to permit contractors, other than the original developer, to use the software on a federally funded project.

Conversely, the most recent version of the "Data Rights" section of the FAR allows the government to grant a "limited license" to the original software developer to market the software as developed, or any subsequent revision to it, in the commercial marketplace. In some instances there might be small fees involved. Exceptions concern software related to national security and certain "other kinds of software" subject to prohibitions on technology transfer to foreign countries and their nationals.

## 2. Defense Software Technology Strategy

Software reuse and megaprogramming is the first of five major themes proposed by the DoD Software Working Group in its report on DDR&E (Director of Defense Research and Engineering) Software Technology Strategy (SWTS). This is the technical portion of the DDR&E Software Action Plan (SWAP), under the guidance of the DoD Science and Technology Initiative. The remaining themes concern re-engineering and post-deployment software support technology, process support, leveraging of commercial technology, and integration of artificial intelligence and software engineering technology.

After performing ROI analyses on the alternatives, the Working Group concluded that "Current reuse and repository initiatives will have good payoffs, but they will be limited by the shortage of technology to support confident composition of software components." Although some cost savings should accrue, according to the Group, "Full return on DoD investment will not come from savings, but from the positive effect of achieving the "ilities" (quality, functionality, interoperability, etc.)."

## 3. Current Federal Software Repositories

At least three reusable software repositories already exist, at NTIS, NASA and DOE-Oak Ridge, which operate under the provisions of the FAR mentioned above. Their experiences indicate that software reuse and sharing works, with favorable financial results for both the government and industry.

- The largest repository is available through the National Technical Information Service (703-487-4600). The software and the descriptive index is assembled by the Federal Computer Products Center, which collects the software from DoD and other agencies and evaluates their availability under several criteria. The NTIS Reusable Software publication, PB-92-100106, lists more than 2,000 software programs, and costs $59.00. Use of the software is free to government agencies and current government contractors for use on a federal program. Some minimal charges are associated with use of the software in the commercial sector.

  Some commercially developed software is also listed, that vendors have offered to the Center. This software is limited to executable format, and does not include source code. Vendors are identified so that users may separately contact them for a license or use agreement. A number of programs from DoD are listed, from non-

classified business process applications and some internally developed tools.

- The second largest depository is NASA's COSMIC (Computer Software Management and Information Center), operated by the University of Georgia, Athens, GA. (tel: (404) 542-3265; FAX: (404) 542-4807). This center lists more than 1,200 programs from NASA's Aeronautic and Space programs. About two-thirds of the programs are supplied to public organizations, and one-third are used by NASA organizations other than the originator. The software addresses artificial intelligence, fluid dynamics, finite structural analysis, antenna design, thermal and fluid flow, etc.

  Programs are available at low cost, and usually include the source code. Information on the software available is listed in the COSMIC Catalog, in hard copy at $25, microfiche (48x) at $25, magnetic tape (in ASCII and EBCDIC 9-track) at $50, on-line (COSLINE), diskette at $30, E-mail or FTP (File Transfer Protocol). Center personnel reported a high level of activity, including applications in the private sector on projects from NASA's Technology Transfer Program.

- The Department of Energy operates a software repository at the Oak Ridge, Tennessee facility. Previously known as the National Energy Software Center, it is now called the Energy Science and Technology Software Center. The center is part of the federal laboratory consortia. It lists about 1,000 programs developed by the government and contractors for the Department of Energy and the Nuclear Regulatory Commission.

  Source code is provided on 95% of the software, and executable code on the remainder is subject to copyright restrictions. Similar to the limitations of the NTIS listing, there are special restrictions concerning release to foreign governments and technology transfer. The center processes

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500 calls per month and more than 3,000 E-mail requests. There is a guide available that identifies the software available at the Center (tel: (615) 576-2606).

## 4. Agency Views of Software Reuse

In response to budgetary pressures, many federal agencies have begun to shift to commercial off-the-shelf (COTS) software, and away from more expensive custom software development, except where mission support presents unique information processing problems. This trend is documented in INPUT's report, *Federal Software and Related Services Market*, published in December 1991.

The agencies interviewed considered the requirement to develop reusable components in custom software as part of a systems contract undesirable, from both cost and operational benefit viewpoints. They point to the repositories described above as sources of software that may be used by contractors to reduce the time and effort to modify existing custom software or software packages, or to develop new custom software. Under the FAR Data Rights provisions, they have also seen federal software converted to commercial applications. Except for a few very large civil systems, software productivity has not been seen as a problem of the magnitude described by several Defense software audits.

## 5. Information Industry Concerns

Industry reaction to the DDR&E Software Reuse Initiative has ranged from concern about how the initiative will be implemented to disbelief that it will be any more successful

than the highly touted but largely unenforced mandate for DoD-wide implementation of Ada software.

The Federal Systems Integration Committee of ITAA produced a white paper on the technical and business concerns of industry about DoD implementing the initiative. It notes that the technology needed for success is just emerging, emphasizing the requisite attributes of the repositories, and questioning the problem of who assumes the risk of non-conforming modules. It voices concern about the legal and financial aspects related to the prospect of diminished competition and increased cost of developing reusable and shared software. The white paper also questions the likely impact on innovation and security, certification and warranties.

## 6. Conclusions

The underlying problem, in the view of DoD and other agencies, is the current inability to obtain any significant improvement in software productivity. The General Accounting Office has repeatedly criticized the agencies and industry for long delays in implementing systems that were attributed to problems with the software. The SWTS report noted that DoD has studied the software technology problem for more than 20 years, but has not instituted any proposed solutions, with the exceptions of Ada and the Software Engineering Institute. And Ada has not been adopted DoD-wide since its designation as a DoD standard 10 years ago.

Although there may be shortcomings to the proposed DDR&E Software Reuse Initiative, it may soon be one of the few strongly supported technology programs in town.

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# Federal Government UNIX Market

New technologies appearing almost daily in the marketplace threaten the survival of traditional products. One traditional product that has enjoyed long-term success in the federal marketplace is UNIX. With emerging technologies and major marketing thrusts targeting workstation environments, some analysts claim that the demand of desktop UNIX will be exhausted. This bulletin examines some of the issues that will influence the direction of the federal market with respect to the UNIX desktop market.

## The Federal Government Is Partitioned With Respect to UNIX

In spite of obvious overlaps in memory management and processing capability, distinctions between complex instruction-set computers (CISC) for the desktop and reduced instruction set computer (RISC) workstations are still made on functional grounds. Office systems, data base development, and routine programming environments are the domain of CISC, while scientific and high tech image-based applications are the domain of RISC. Text-based interfaces are improving for CISC personal computers, but these interfaces are not yet where UNIX-based RISC workstation environments have been operating successfully over the past decade.

UNIX remains dominant as the multiuser, multitasking operating system in the federal government, while DOS-based personal computers dominate in more traditional, heavily populated office applications. UNIX has not been successfully implemented on (IBM-compatible) personal computer platforms because of its considerable demands for memory and high volume data transfer rates.

Within the federal government, UNIX is normally associated with Sun Microsystem RISC-based workstation platforms. AT&T, DEC, Hewlett-Packard/Apollo, IBM, and Intergraph platforms are also found in these environments. UNIX on CISC-based personal computers is limited for the most part to Apple Computer's Macintosh processors. Apple's implementation of UNIX (A/UX) for the Macintosh offers full functionality, but Apple has not been successfully in breaking into the federal government personal computer market, with less than 10% of the installed base. Other vendors are improving their UNIX-based products, but they are not appearing significantly in federal agencies.

## UNIX Is Widely Distributed

Because UNIX is effective in high tech, multi-tasking environments, UNIX workstations can be found virtually everywhere, as shown in Exhibit 1. The 44% figure for military services (combined Army, Navy and Air Force) can be attributed to the fact that the Department of Defense has been standardizing on UNIX for their workstations. Both the Department of Energy and National Aeronautics and Space Administration represent other high tech environments in which UNIX has been heavily used. Laboratories in several agencies comprise the remainder of the installed base.

Workstations and midrange platforms that operate under UNIX are widely represented by different manufacturers (Exhibit 2). Not surprisingly, AT&T (22.8%), Sun (20.3%), and Intergraph (16.8%) all hold most of the market share, but several other vendors are represented. Exhibit 2 shows the distribution of vendors across workstation and UNIX midrange platforms installed in the federal government.

## The Future of UNIX Is Dim

The largest threat to the UNIX environment appears to be Microsoft Corporation's anticipated new technology (NT) product. While NT is not yet appearing in federal

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Exhibit 1

### UNIX Distribution in the Federal Government



Pie chart segments:
- All Others <1%
- NASA 13%
- Transportation 2%
- Air Force 10%
- Defense 4%
- Army 17%
- Agriculture 2%
- Energy 15%
- Treasury 8%
- Health and Human Services 2%
- Navy 17%
- Interior 3%
- Commerce 7%
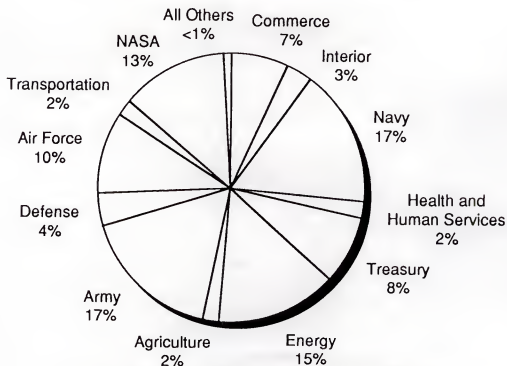
Source: Computer Intelligence

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Exhibit 2

## Manufacturers of UNIX Midrange Platforms Installed in Federal Agencies

All Others
7.7%

Zilog
6.4%

AT&T
22.8%

Unisys
10.2%

DEC
2.9%

H-P
4.0%

Sun Microsystems
20.3%

Intergraph
16.8%

Silicon Graphics
8.9%
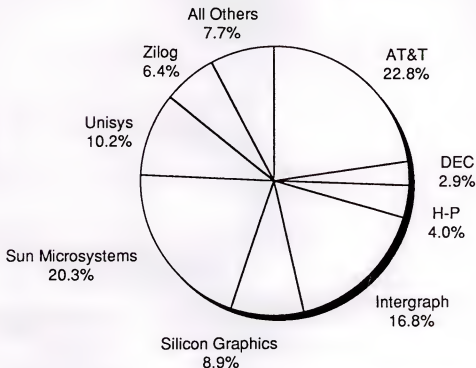
Source: Computer Intelligence

agencies, it promises considerable potential for high-end personal computer applications. Most of these high-end platforms are installed as part of local area networks (LANS), and the need for an effective operating environment across these LANS exists throughout those government offices where UNIX historically has not played well.

Results from a Dun & Bradstreet/UniForum survey of participants at the March 1993 UniForum Conference and Trade Show revealed that 37% believe Microsoft's new network-operating system product will extend benefits not offered by UNIX (Exhibit 3). Less than a majority (42%) believe NT would not extend benefits not offered by UNIX, and only 22% of those interviewed indicated they were unsure about comparable benefits. Without

considering the needs of these specific users, one could imagine a ground swell of interest in NT as an alternative to UNIX.

Many agencies are installing Microsoft's Windows, a product which is orienting DOS-users to the advanced graphic user interface environments that, until only recently, had been supported principally on Apple's Macintosh platforms and in UNIX-based RISC workstations. The transition to Windows running on a LAN positions the NT product favorably to challenge UNIX, at least on high-end CISC personal computer platforms, particularly if one ignores the nature of the actual applications running in UNIX-operating environments. In actuality, the anticipation of NT on the network may serve more to improve operations for the personal computer-based

Exhibit 3

## Will NT Offer Benefits Not in UNIX?

Don't Know/
No Answer
21%

Yes
37%

No
42%

Source: Dun & Bradstreet Software

The NT challenge against UNIX as the dominant network-operating system could be dissipated as a result of the recent purchase of UNIX Systems Laboratories from AT&T by Novell Inc. Novell's Univel subsidiary has set a goal to both unify UNIX products and bring UNIX as an operating system into the domain of personal computers. The combination of talents and capabilities from both organizations suggests a serious force to continue UNIX effectiveness, as a minimum in those workstation environments in which it has played successfully over the years. The fact that Novell networks have been the overwhelming choice of federal users offers an advantageous, installed base to support a new UNIX-network product that could migrate from high tech environments to the domain of the personal computer.

LAN, and it can provide more clarity regarding appropriate applications for UNIX-based workstation networks.

At this point, the recent partnership between Microsoft and MIPS (now owned by Silicon Graphics) suggests an argument that the RISC workstation may be targeted by NT, but existing UNIX users in the government are skeptical that a serious challenge can be effected.

## The Future of UNIX Is Bright

Developers in the UNIX market are not sleeping. The PowerPC chip, jointly produced by IBM, Apple, and Motorola will support many new desktop applications, and a new version of IBM's UNIX operating system (AIX) is now under development. Apple itself is shipping an upgrade for its A/UX product (Version 3.0), which offers full UNIX functionality.

## What Does UNIX Need?

The predominant CISC personal computer operating environment in the federal government continues to be DOS, with no serious challenges short of Microsoft's NT. Microsoft's recent DOS upgrades and enhanced Windows product, especially for the network environment, represent major improvements in traditional office-based LAN operations. However, UNIX still has a performance advantage in RISC environments. Microsoft's NT is being promoted by some market analysts as an alternative to both DOS on CISC network servers and UNIX on RISC servers.

Agency officials are interested in upgrading operating system functionality and manageability of both RISC and CISC environments. While both UNIX and NT are potential operating systems in either environment, both cannot serve simultaneously

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as a single standard government-wide network operating system. As it stands now, NT is slow getting started in the marketplace, and UNIX developers have time to adjust to criticisms of its limitations. UNIX will not likely replace the Microsoft products as preferred operating systems on personal computers, but it can solidify its hold on the workstation processors.

The lack of effective standards will remain a question mark in UNIX network operating environments. Users continue to cite problems with the multiplicity of installed UNIX versions. UNIX International, the vendor body attempting to address the problem of multiple versions of UNIX, announced, late in 1992, the formation of a work group to set direction for future releases of the System V version. Original Equipment Manufacturers (OEMs), Independent Software Vendors (ISVs), and end-users are included in the work group. Nothing yet has been made public, at least for federal users.

UNIX developers have two strategic directions to follow. First, developers must solidify UNIX's existing installed base. They appear to be doing this. New and improved products are being marketed to bridge existing installed applications across UNIX platforms provided by different vendors. More rugged UNIX-based tools, which take advantage of recent advanced hardware technologies, are necessary to provide interoperability between programs operated by different agency programs.

For federal government users, the anticipated competition between NT and UNIX is presently not a real issue. Agency buyers are occupying a "wait and see" position. Currently, the potential environments for each product are distinct and separate. The possibility that NT will make inroads into traditional UNIX workstation

environments, or that Novell's UNIXWare network-operating system will make inroads into corporate network environments, is not a well-discussed issue among federal agency information technology buyers. These officials will let the issue resolve itself in the commercial markets.

The outcome of this mostly hypothetical competition could cause concern to users in either office or workstation environments because of the need to protect installed applications. For the foreseeable future, network-operating systems in federal agency RISC workstation environments will improve around upgraded UNIX products and tools. Network-operating systems in federal agency CISC desktop environments will improve around Windows-based or Apple-based applications, and may benefit from a rugged, fully functional NT product. Operating systems which potentially cross over environments will meet with stiff resistance.

While small COTS applications are easier to sell than big UNIX applications, software that can be easily moved from platform-to-platform has a huge potential market. UNIX configurability, programming capabilities, and multiuser nature all can eliminate the drawback of today's LANs. In federal agencies, a larger issue must be addressed. Users must adjust their organizational processing scenarios to a transition, from single users attached to networks to multiple users operating multi-tasking applications in network environments. This is a difficult task, and vendors should be prepared to help.

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A Publication from INPUT's Federal Information Technology Market Program

# Agency Profile—Department of Housing and Urban Development

## Mission

The Department of Housing and Urban Development is responsible for programs related to the nation's housing needs, fair housing opportunities, and community development. It administers programs to help families become homeowners, facilitates construction and rehabilitation of rental units, provides rental assistance, ensures a supply of mortgage credit, combats housing discrimination, aids community development programs, and helps protect the home buyer in the marketplace.

## Organization

The Department is administered by a Cabinet-level Secretary whose headquarters office is located in Washington, D.C. Each of the major program offices is headquartered in the D.C. office. Two external organizations supporting the Secretary are the Interagency Council on the Homeless and the Federal Housing Finance Board. Ten regional offices distributed throughout the country support the operations of the six major program offices. These regional offices account for almost 75% of HUD's total civilian workforce of 13 million. Exhibit 1 shows the organizational structure of the agency.

## Departmental Programs

a. *Federal Housing Administration* - These programs underwrite loans to help families become homeowners and to facilitate the construction and renovation of rental units. Section 8 and other programs assist low-income families who otherwise could not afford decent housing.

b. *Fair Housing and Equal Opportunity* - Housing discrimination prevention is supported by an affirmative program to further fair housing opportunities.

c. *Community and Neighborhood Development and Preservation* - Block grants provide funding to support local programs such as model cities, urban renewal, and water and sewage management. Grants are awarded to states, cities, and eligible local government units on a formula basis.

d. *Lead-based Paint Abatement and Poisoning Prevention* - This program is administered by an office under the Assistant Secretary for Policy Development and Research. It develops regulations, guidelines, standards, and policies in conjunction with other department programs.

Exhibit 1

## HUD Organizational Chart

**Program Offices**

- Federal Housing
- Fair Housing & Equal Opportunity
- Community Planning & Development
- Lead-based Paint & Poisoning Prevention
- Policy Development & Research
- Public and Indian Housing
- GNMA
- Regional Offices

**Staff Offices**

- Administration Staff Offices
- Indian and Alaskan Native Programs
- Interagency Council on the Homeless
- Federal Housing Finance Board

**Regional Offices**

- I. Boston, Massachusetts
- II. New York, New York
- III. Philadelphia, Pennsylvania
- IV. Atlanta, Georgia
- V. Chicago, Illinois

- VI. Fort Worth, Texas
- VII. Kansas City, Kansas
- VIII. Denver, Colorado
- IX. San Francisco, California

Source: INPUT

e. *Public and Indian Housing* - These programs cover public housing management and development activities and provisions for Indian housing assistance. It also includes a new urban anti-crime initiative.

f. *Government National Mortgage Association (Ginnie Mae)* - GNMA is a government corporation that provides mortgage-backed securities to ensure an adequate supply of mortgage credit.

## Program Budget

Overall program spending is expected to increase during FY 1994. Almost all programs show a decline in FY 1995 from FY 1994 levels, but higher levels than in FY 1993, as reported in this year's *Budget of the United States Government*. Exhibit 2 shows the trend in budgeted program obligations.

## Information Technology Budget

Although the growth rate of anticipated spending by the Department of Housing and Urban Development diminished in FY 1994 from FY 1993, INPUT forecasts an increase in budget dollars from FY 1994 through FY 1998. Exhibit 3 shows this anticipated growth in obligations for information technology systems. Dollars budgeted within each category are composites of the total program needs for the department.

The major growth in information technology (IT) spending is in systems analysis, programming, design, and engineering services. With a steady decline in personnel costs over the five-year period, professional services contracts will be the major means by which the department will attain its software development goals.

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Exhibit 2

## HUD Program Budgets

| Program | FY1992 Actual | FY1993 Estimated | FY1994 Estimated |
|---|---|---|---|
| Low-income housing | 6,578 | 8,679 | 8,423 |
| Fair Housing & Equal Opportunity | 13 | 15 | 21 |
| Community Planning & Development | 3,419 | 6,601 | 4,234 |
| Lead-based Paint Abatement (1) | - | - | - |
| Policy Development & Research | 25 | 23 | 35 |
| Public & Indian housing | 165 | 175 | 265 |
| GNMA (2) | 1,079 | 1,018 | 952 |

Figures in $ Millions

Notes: (1) Operating budget of $500,000 included in Policy Development & Research
(2) Figures are for obligations. Program has no budget authority.

Source: Budget of the United States Government: Fiscal Year 1994, April 8, 1993

Voice communications is the other major growth area in department IT spending. In part, this can be attributed to more accurate reporting of telecommunications needs in the information technology budget instead of in operating budgets.

## Major Information Technology Acquisition Plans

The following major (life-cycle costs exceed $25 million) program activities have been identified by INPUT through agency planning documents and information technology budget submissions:

a. *HIIPS Operations* - This program is supported by a consolidated automated services contract that provides all computer hardware and teleprocessing support for HUD. The Department expects to spend $2.1 million for systems conversions during FY 1993. It plans to spend $310 million for operations from FY 1993 through FY 1998. The HIIPS contract is held by Martin-Marietta.

b. *Core Accounting* - In-house development of a system to provide a central standardized accounting environment will be completed during FY 1993 at an anticipated cost of $3.9 million. The system (FIR$T) will capture, report, control, and summarize financial results of the department's accounting processes.

c. *Mortgage Insurance* - HUD will spend $2.9 million in FY 1993 to upgrade automated systems for processing mortgage insurance transactions and managing mortgage insurance accounts.

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Exhibit 3

## HUD Information Technology Budget

| | FY1992 | FY1993 | FY1994 | FY1995 | FY1996 | FY1997 |
|---|---|---|---|---|---|---|
| **Capital Investments** | | | | | | |
| Purchase of Hardware | 5,023 | 4,986 | 5,146 | 5,321 | 5,512 | 5,710 |
| Purchase of Software | 1,156 | 1,418 | 1,526 | 1,610 | 1,677 | 1,729 |
| Site or Facility | 0 | 0 | 0 | 0 | 0 | 0 |
| **Personnel** | 23,241 | 22,527 | 22,186 | 21,743 | 21,221 | 20,584 |
| **Equipment, Rental, Space, and Other Operating Costs** | | | | | | |
| Lease of Equipment | 7,265 | 10,151 | 10,253 | 10,458 | 10,719 | 11,041 |
| Lease of Software | 7,226 | 8,861 | 8,507 | 8,098 | 7,588 | 7,011 |
| Space | 2,419 | 2,966 | 3,005 | 3,050 | 3,095 | 3,142 |
| Supplies & Other | 8,464 | 10,380 | 11,366 | 12,309 | 12,814 | 12,917 |
| **Commercial Services** | | | | | | |
| ADPE Time | 5,073 | 6,221 | 6,153 | 6,036 | 5,872 | 5,666 |
| Voice Communications | 8,297 | 8,271 | 10,058 | 12,119 | 14,216 | 16,690 |
| Data Communications | 3,023 | 3,707 | 3,803 | 3,910 | 4,144 | 4,443 |
| Operations & Maintenance | 15,344 | 20,033 | 20,053 | 20,294 | 20,801 | 21,529 |
| Systems Anal/Prog/ DSGN/Eng | 25,704 | 45,011 | 50,097 | 54,055 | 58,704 | 63,400 |
| Studies & Other | 0 | 0 | 0 | 0 | 0 | 0 |
| Significant Use Info. Tech. | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total Obligations** | 112,235 | 144,552 | 152,151 | 159,001 | 166,363 | 173,862 |

All figures in $000.                                   Source: EPA and INPUT

d. *Grants and Subsidies* - HUD will spend $2.8 million in FY 1993 to upgrade automated systems for managing and executing departmental grant and loan programs. It includes CFS/TRACS.

INPUT's Procurement Analysis reports (PAR) program currently tracks four active program contracts. Exhibit 4 shows these programs and their status:

## Current Issues at HUD

The department's information technology focus includes the following activities:

• HUD has purchased Computer-Aided Software Engineering (CASE) tools and expects that CASE methodology will be prominent in applications development for the department. Most development will be conducted through professional services contracts, but HUD expects that the contractor will use CASE tools.

• *HUD* has developed a departmentwide infrastructure for electronic data interchange (EDI). It has begun a pilot project to automate Federal Housing Administration mortgage insurance claims processing using EDI. HUD has been accepting actual EDI claims since May 1993. Two banks are currently involved in the project. The program is expected to reduce HUD's current

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Exhibit 4

## HUD Contracts

| Program | Type | Status/Size | Comment |
|---------|------|-------------|---------|
| 1. Computerized Homes Underwriting Mgt. System (CHUMS) | Professional Services | Awarded 12/90 $5 M/year | Sys. dev't & sw maintenance. FHA Single Family Insurance forms. Contracts held by Advanced Technology Systems ($8.1 M) & Computer Based Systems, Inc. ($9.9 M) |
| 2. HUD Integrated Info. Processing Services (HIIPS) | SI Professional Services | Awarded 11/90 $530 M life | Provision, installation, and operation of all of HUD's ADP equipment and services. Contract held by Martin Marietta. |
| 3. ADP Dev't & Maintenance Support Services | Professional Services | Open $11.3 M life | Current contracts are held by Computer Data Systems, Inc. (CDSI), ATS, & Orkand. They are presently performing applications software development. |
| 4. Multifamily Notes System (MNS) | Professional Services | Open $3.8 M | Cost Reimbursement/Fixed Unit. This program will provide for a new Multifamily Notes System and replace the current system utilized by HUD. Data Prompt, Inc. will, provide services until the new system is developed. |

Source: INPUT

$15 million annual claims processing costs to $3-5 million when fully implemented.

- HUD is building a standard HUD financial platform in response to the General Accounting Office criticism over the past few years. Agency officials have not decided whether they will integrate the financial system with about 30 existing HUD accounting systems or convert to one consolidated system. It is believed unlikely that HUD would replace all its existing accounting systems.

- HUD plans to build a Client Information and Policy System, an electronic bulletin board service for posting policy documents. HUD's in-house data base, the Directives Access System, can now be accessed by HUD employees using full-text searches. The BBS will support full-text access of records and would be available free to the public.

- As the federal market for Geographic Information Systems (GIS) grows, different agencies are taking advantage of its versatility in supporting their programs. HUD is using GIS to map enterprise zones in Los Angeles following the riots earlier this year. HUD hopes to use the Los Angeles example as a model for enterprise zone projects in many U.S. cities. This application includes automated mapping facilities management that covers automated maps of roads, streets and infrastructure; and land information systems (LIS) that deal with real estate and land ownership.

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# National Performance Review—"Creating A Government That Works Better and Costs Less"

## The Report is Out...Where is the Report?

Right on schedule, the White House released its report on reducing red tape and increasing productivity in the federal government. The report is the result of a great deal of effort, time, energy, and personal commitment on the part of officials from within government. This fact alone separates it significantly from similar reports to streamline government that have been conducted by outside companies and commissions.

The resulting question is, "Where is the real report?" The version published appears to have been written by a speech writer for general public consumption rather than by a technical writer as a working document for agency follow-up action. The public does not have access to the "shadow" document, but future supporting documents will be released.

Actions are categorized for executive and legislative initiatives. Legislative initiatives await the pleasure of the Congress. The President has an opportunity to perform the other actions.

Presuming that executive actions follow, required funding to implement action items will not come at the expense of the information technology (IT) budget. In fact, IT budgets will probably increase in the future in order to carry out specific recommendations for the use of IT as well as new spending to support other actions. Whether IT increases will come in FY 1995 (whose budget is already in development) or in FY 1996 will depend on the timeliness of actions taken by the Congress in implementing legislation deemed necessary to carry out its share of the report's recommendations.

## The Report Targets Significant Dollar Savings

Savings of $108 billion over a five-year period are to be gained from better management, mission refocusing, streamlined bureaucracy, and through the use of information technology. Improved management of excessively expensive programs such as welfare ($25B), food stamps ($27B), public housing ($13B), War on Drugs ($12B) will be targeted to provide much of the savings. These savings will for the most part (1) be returned, uncommitted, to the Treasury, (2) result in reduced appropriations, or (3) be returned, in part (a small percentage) to the agency's relevant operating budget.

Exhibit 1

## Estimates of Savings by Fiscal Year

|  | FY'95 | FY'96 | FY'97 | FY'98 | FY'99 | Total |
|---|---|---|---|---|---|---|
| Agencies | 7.0 | 6.2 | 7.0 | 7.3 | 8.9 | 36.4 |
| Streamlining the Bureaucracy | 5.0 | 5.8 | 7.4 | 9.5 | 12.7 | 40.4 |
| Procurement Reform | 0.0 | 5.6 | 5.6 | 5.6 | 5.7 | 22.5 |
| Information Technology | 0.1 | 0.5 | 1.2 | 1.6 | 2.0 | 5.4 |
| Intergovernmental | 0.5 | 0.7 | 0.7 | 0.7 | 0.7 | 3.3 |
| Total | 12.6 | 18.8 | 21.9 | 24.7 | 30.0 | 108.0 |

Figures in $ Billions

Source: *Creating A Government That Works Better and Costs Less*,
National Performance Review, September 7, 1993.

Some processes will save dollars merely by consolidating existing duplicative processes:

a. Regulations on personnel management
b. Delegated spending of federal funds
c. Multiple budgets and accounting systems
d. Oppressive procurement regulations

Exhibit 1 shows the categories defined under the National Performance Review for dollar savings and how these savings are accounted for by fiscal years.

Increased figures for the out-years will result from cumulative savings rather than from new initiatives. Some agencies have already begun operational improvements that will result in immediate reductions in operating costs. The lengthy process and political sensitivity of procurement reform will delay savings in this area. (Major procurement reform has been on the congressional agenda in each of the past two years with no resulting changes.) The five-year period extends into the next four-year administration cycle. Success in this set of actions would certainly have a positive influence on voters in the next Presidential election.

## Many Categories for Improvements are Available

The government reports it can save money by improving its management and operations in a large number of categories, as shown in Exhibit 2.

Many of these categories overlap. A savings resulting from one initiative could show benefits in more than one category. Information technology spending, for example, will benefit categories of management, services, and program design.

## Reforming the Government Will Require New Capabilities

In order to improve its various management tasks, agencies will need new management tools. Performance measure, quality assurance,

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Exhibit 2

## Categories of Major Recommendations

| Category | Number of Recommendations |
|---|---|
| Procurement Reform | 20 |
| Human Resource Management | 14 |
| Financial Management | 13 |
| Information Technology | 13 |
| Support Services | 11 |
| Regulatory Systems | 10 |
| Budgeting | 8 |
| Management Control | 8 |
| Organizational Structures | 6 |
| Service Delivery | 6 |
| Customer Services | 5 |
| Leadership and Ma... | 4 |
| Program Design | 4 |
| Environmental Management | 4 |
| Administration | 4 |

Source: *Creating A Government That Works Better and Costs Less,*
National Performance Review, September 7, 1993.

and training tools are called for. It is unlikely the agencies will be able to establish required capabilities initially from among its existing staff. Access to these tools will require desktop upgrade as well as personal services contracts. Existing and planned hardware should accommodate the needs, but justification for future acquisitions will be strengthened.

The "electronic marketplace" recommended by the report increases the need for standard application packages and networks to transfer information and documents. This recommendation should boost interest in electronic commerce, which has been losing momentum lately as an information technology market. Much of the required hardware is in place, but electronic commerce support applications must be developed and standards must be coordinated to assure real savings through reduced levels of operating costs.

## Streamlining the Procurement Process Will Streamline Spending

Streamlining the procurement process can assure earlier contracts at less overall cost to federal agencies. Cost savings can be anticipated through both decreases in agency time to procure, and in lower bid prices by contractors who would pass on their own savings from reduced proposal development time.

Increasing blanket delegations of procurement authority "cloaks" significant market information. This information has been helpful to vendors in preparing for solicitations and in conducting teaming and subcontracting negotiations. If agencies follow through on establishing electronic bulletin boards for solicitation support, information would be available in a timely manner at additional savings of agency contracting staff time.

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Otherwise, potential contractors will have little access to needed information for resp ? - en ci medium sized-contracts.

Multiple-award mandatory schedule (non-ADP) contracts now assure low prices over the multiple year contract periods. Neither open market competition nor non-mandatory schedules assure the same levels of low prices. ADP products and services are not available on mandatory schedule contracts. Better management of these GSA-negotiated schedule contracts would assure the vendors enough profitability to support lower prices for products and services.

Rolling-over 50% of unspent operating dollars at the end of a fiscal year would assure that more budgeted funds will be spent rather than disappear into the Treasury. More systematic and less opportunistic spending at the end of the year can be managed with more correlation with documented program requirements.

## Improved Administration Will Have the Benefit of Improved Staff Performance as well as Reduced Operating Costs

The effect of removing full-time-equivalent ceilings would be separating true operating costs from personnel costs. It would offer a closer approximation of funding needed for contracts and program operations rather than for placing agency staff in programs merely to keep them gainfully employed.

New personnel policies would support the hiring of higher qualified employees at market salaries. This could actually increase the job pool and decrease the dependence on contracted professional services unless qualified personnel are "bought" only for the performance period of a contract.

Empowering state and local governments would allow them to control their own spending. Contracting at that government level may make more dollars available for spending. Currently,

billions of unspent dollars for state and local services are returned each year to the Treasury. While this reform step would not result in deficit reduction, it would have the effect of improving government performance.

Putting customers first has been a battle cry of this Administration. Suggested customer service centers will require (1) personal services, (2) communications equipment, (3) access to databases of information on a variety of topics. It would also require accommodation for disabilities (physical, intellectual, educational, cultural) among the citizenry. So far, the government has shown reluctance toward accepting the bill for such services (with some notable exceptions such as the Internal Revenue Service). It is more inclined to want to pass on costs along with other business opportunities to contractors. This will probably not change under NPR actions.

The proposal to reduce 252,000 employees would target middle management, since this is one of the areas thought to be superfluous. This reduction will be resisted, with the effect of slowing down other reform measures. Further, most systems in the government have been designed to operate based on the existence of such managers, and anticipated operational efficiency gains would be lost.

## Reforming Impacts will be Felt by a Large Number of Agencies

The agencies that can be expected to absorb the most impact are shown in Exhibit 3.

## These Measures Could Work

The released report does not identify specificity beyond rhetoric in support of its actions. Nevertheless, all the working level documents that supported the final report should be available for any follow-on actions deemed appropriate by the White House and the Congress. The public should not be in a hurry

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Exhibit 3

## Number of Actions by Agency

| Agency | Number of Actions |
|---|---|
| Agency for International Development | 7 |
| Agriculture | 7 |
| Commerce | 15 |
| Defense | 12 |
| Education | 1 |
| Energy | 8 |
| Environmental P. Agency | 11 |
| Executive Office of the President | 12 |
| Federal Emergency Management Agency | 4 |
| Health And Human Services | 14 |
| Housing and Urban Development | 10 |
| Interior | 14 |
| Justice | 16 |
| Labor | 21 |
| NASA | 5 |
| Small Business Administration | 8 |
| State/U.S. Information Agency | 9 |
| Transportation | 23 |
| Treasury/Resolution Trust | 20 |
| Veterans Affairs | 16 |

Source: *Creating A Government That Works Better and Costs Less*,
National Performance Review, September 7, 1993.

to dismiss this report as yet another set of impossible recommendations.

The President appears to be hanging onto the momentum of this initiative and needs something major to turn around negative public opinion. He will work hard by example and by putting pressure on the Congress to carry out the proposed actions.

There would be serious pressure on both the Administration and the Congress if voters truly believe in the proposed actions. Less negativity seems to have been generated from this

initiative than from others in the past. The bureaucracy itself has demanded change, and taxpayers are looking for reduced government spending. The economics of the international marketplace demands streamlining measures and economic development from this Administration.

The recommendations are coming from government itself, rather than from an outside commission or "team of experts." This means that the bureaucratic culture may lack its ordinary resistance to change, and the bureaucracy will be pushing for reform in the major cost-savings areas.

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